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Managing Interleukin-2 Therapy

Clinical Center

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

National Institutes of Health

HE 20.3002:

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Welcome to 2 East. The nursing staff prepared this booklet to acquaint you with high-dose interleukin-2 (IL-2) therapy and its side effects. Throughout therapy, your nurses will work closely with you to monitor your progress and to help you deal with the side effects that accompany this treatment.

A group of health care professionals, known as the IL-2 team, will visit you every morning. The team is comprised of doctors and nurses. Please feel free to ask them any questions you may have about IL-2 therapy.

What is interleukin-2?

White blood cells help the body fight infections and cancers. IL-2 is a protein made by the body that stimulates a portion of white blood cells, called lymphocytes, to make copies of themselves and become active against tumor cells.

How will I receive interleukin-2?

You will receive interleukin-2 by an intravenous (I.V.) infusion. The I.V. needle will be in place throughout therapy, usually 5 or 6 days. In addition to IL-2, medications may be given through the I.V. to help you manage the side effects of therapy, and a solution of water, sugar (glucose), and salt (sodium) will be given throughout therapy to maintain a proper balance of body fluids.

What will treatment involve?

When you are admitted to 2 East, six to eight tubes of blood will be drawn for routine tests and research studies. Each day that you are in the hospital, you will also have blood drawn. While you receive IL-2, your nurses will closely monitor your condition. Your vital

signs (temperature, pulse, respiratory rate, and blood pressure) will be checked every 4 hours and more often if needed. In addition, you will be weighed daily at 6 a.m.

Every day that you receive IL-2, you will also be given three medications:

- acetaminophen (to prevent fevers)
- indomethacin (to decrease inflammation)
- ranitidine (to decrease gastric acid secretion).

Interleukin-2 is a pale yellow liquid that comes in a 2-ounce bottle. It will be given at about 7 a.m., 3 p.m., and 11 p.m. for 5 or 6 days. Each infusion will last 15 minutes. After receiving your dose, remain in your room for 1 hour so that the nursing staff can observe how you react to the treatment.

Will there be any side effects from treatment?

As IL-2 therapy progresses, side effects may make you feel increasingly uncomfortable. Many patients have said that they felt as though they had a bad case of the flu. Other side effects include fatigue, muscle aches, weakness, fever, chills, low blood pressure, swelling, mental and emotional changes, itching, dry skin, decreased urine output, nausea and vomiting, decreased appetite, dry mouth, and diarrhea. You may experience some or all of these side effects, but they will be temporary and will subside after treatment. To help the nursing staff care for you, be sure to inform them whenever you feel any physical, mental, or emotional changes.

Circulatory Side Effects

IL-2 can cause side effects that affect your heart and

blood vessels. These side effects include chills, low blood pressure (hypotension), fast heart rate (tachycardia), and swelling (edema).

Chill

Some patients feel a chill 1 to 2 hours after receiving IL-2. If you begin to feel cold, inform your nurse who will give you warm blankets. If you develop a severe chill, your nurse will give you Demerol through your I.V. to help the chill subside.

Low Blood Pressure (Hypotension)

Hypotension may cause you to feel lightheaded or dizzy. If you feel this way, stay in bed and call your nurse. Your nurse will take your blood pressure and may lower the head of your bed. Your nurse may increase the rate of your infusion or give you another medication (plasbumin) through the I.V., as ordered by your doctor. If your blood pressure does not increase after these measures have been taken, you may be transferred to the Intensive Care Unit to receive other medications and to be observed more closely.

Rapid Heartbeat (Tachycardia)

Some patients develop a heartbeat greater than 120 beats per minute (tachycardia). If this occurs, your pulse will be monitored frequently and your doctor will be notified.

Swelling (Edema)

Most patients experience swelling (edema) of the hands, feet, and face. Edema is caused by fluid leaking into the body tissues and will usually begin by the second day of therapy. If you develop edema, you may gain 10 to 20 pounds. Since your hands may swell, remove all rings before you begin therapy.

Swelling will disappear a few days after treatment. To

help reduce the swelling more quickly, you may be given Lasix, a medication that will help your kidneys remove excess fluid by increasing urine output.

Respiratory Side Effects

IL-2 therapy may affect your lungs and your ability to breathe. You may begin to accumulate fluid in your lungs. If you have any difficulty breathing, call your nurse. You will be asked to remain in bed with the head of the bed elevated. When you need to get out of bed, ask your nurse for help. You may also be given oxygen to help you breathe more easily, and your nurse will monitor your respiratory rate and check whether you are having any difficulties. You may also have blood drawn to check the level of oxygen in your body.

Psychological Side Effects

During IL-2 therapy, you may experience changes in your emotions and patterns of thought. While these side effects may be distressing to you, be assured that the staff is experienced in helping patients cope and will do all they can to keep you comfortable. There is also a psychiatrist available to the IL-2 team.

Psychological changes may begin on the third or fourth day of therapy. You may become moody, irritable, disoriented, confused, agitated, forgetful, or lethargic. The severity of these side effects will vary and may depend on how much IL-2 you have received. In other words, the higher the dose of IL-2, the more likely it is that you will experience these changes.

Later, feelings of sadness, increasing irritability, sleep pattern changes (insomnia), nightmares, clumsiness, and moderate confusion may occur. Some patients have had hallucinations (seeing or hearing things that are not there). These side effects may intensify as therapy progresses. As a safety

precaution, your nurse may pull up the side rails on your bed and ask you to summon a nurse with the call bell when you need to use the bathroom.

Less than half of patients have some disorientation, and only a small number have severe changes. If you are having any of these changes, using the radio or television may help distract you. Having a friend or family member, if one is available, may also help. Your nurses will also reorient you frequently to your surroundings.

If these side effects become too severe, IL-2 therapy may be stopped. These side effects will go away when treatment is over.

Skin Side Effects

Almost everyone receiving IL-2 therapy will experience some degree of dry skin or rash. The signs of dry skin are roughness, chapping, scaling, flaking, and redness. Dry skin areas may develop anywhere on the body. By applying creams, oils, lotions, and, perhaps, by taking medications, you will feel more comfortable.

The hospital will provide you with oils, creams, and moisturizing soap. Even before you receive IL-2, begin to use these products. You should avoid using any colognes, aftershave lotions, or soaps that contain alcohol.

The following recommendations may help you manage the skin side effects that occur during IL-2 therapy.

- Apply Eucerin cream twice a day. This cream is most effective when applied after bathing and while your skin is still damp. The cream is very thick and may be difficult to spread. Apply the cream to especially dry areas on your body.
- Apply Lubriderm lotion twice a day. Put it on the parts of your body where you did not use Eucerin. Be careful not to put these oily creams in your eyes.

- Use one capful of Alpha-Keri oil in bath water or in your bedside basin.

In addition to using these products, you may also be given medications to lessen some of the skin side effects. Such medications as Benadryl and Atarax decrease itching and may be given by pill or injection.

When you are discharged from the hospital, stay out of the sun as much as possible. If you go outside, use a sunscreen with a sun protection factor of at least 15. Because some patients have rashes and dryness for up to 6 weeks after therapy, continue this skin care regimen until all signs of dryness have subsided.

Urinary Side Effects

Because IL-2 causes leaking of fluid into body tissues, you will not urinate as much as you normally would. You may notice that your urine will become dark, concentrated, and have an unpleasant odor. Your urine will be measured, and the amount of fluid you drink and urinate will be recorded. For recording purposes, an intake/output sheet will be on your bathroom door. You will need to provide "clean catch" urine specimens the first day of admission and then every third day. You will be provided with a sterile collection container and instructed in how to obtain these clean catch specimens.

If you are unable to urinate, or if your urine output decreases greatly, a Foley catheter will be inserted into your bladder. This catheter is a flexible plastic tube which will drain your urine. The amount of urine obtained from the Foley catheter will assist in determining how much fluid you will need through your I.V. line. The catheter may remain in place until the therapy is completed.

After you have completed the entire cycle of IL-2 therapy, you may receive a diuretic called Lasix to help you lose the excess fluid

retained by your body. This medication will help you urinate more frequently and in larger amounts.

Nutritional Side Effects

Everyone knows that proper nutrition is essential to maintain strength and health. People also have food preferences and favorite foods. During IL-2 therapy, your food preferences and tolerances may change. For example, you may develop a dislike or intolerance for foods which you had previously enjoyed. You may also lose your appetite.

A dietitian is available to help plan meals and provide dietary advice. The dietitian and nursing staff will work with you to ensure that you eat and drink enough during therapy. They will also be available to address any other concerns about your diet. If other side effects of therapy, for example nausea and vomiting, diarrhea, and sore mouth, make it difficult for you to eat normally, medications may be given to you to decrease these side effects.

When therapy is completed, your appetite will return. Then, you may follow your usual diet.

Gastrointestinal Side Effects

IL-2 will affect your stomach and intestines. These side effects will be uncomfortable, and the nursing staff will provide you with medication to help control them.

Diarrhea

By the third day of therapy, many patients receiving IL-2 therapy develop diarrhea. As soon as your bowel movements become softer than usual, inform your nurse so that medications may be given. The sooner you begin taking these medications, the less likely it will be that you will develop severe diarrhea. A variety of medications are used to control diarrhea, but they will not stop it completely. Keep your nurse informed whenever diarrhea starts and whenever you pass loose stools. If your

stools become watery, your nurse wi'l need to measure them in a container that fits in the toilet. If you are passing many loose stools at once and find it difficult to get to the bathroom quickly, you will be given a bedside commode chair. Do not try to walk to the bathroom if you are not feeling well. Just ask for help by pressing the call button.

If you have a colostomy or ileostomy, you may need to alter your routine ostomy care. For example, if you do not wear a pouch, you will want to do so. If you irrigate your colostomy, you will want to stop doing so while you have diarrhea. If diarrhea becomes watery, your unit nurse or ostomy nurse can connect the pouch to a drainage bag to avoid leakage if the pouch overfills.

Diarrhea may also cause skin irritation around the colostomy. To prevent this from happening, we recommend that you use a skin protectant or skin barrier. During IL-2 therapy, do not hesitate to request a visit from the ostomy nurse.

Stomatitis

One side effect of IL-2 therapy is mouth irritation (stomatitis). Signs and symptoms of this condition are dryness of the lips or mouth, a mild burning sensation, swelling, redness, decreased saliva, a change in taste, or mouth soreness. Sometimes a fungus infection, called candidiasis or oral thrush, develops. This condition looks like soft, white patches on the tongue or on the sides of the mouth.

To prevent stomatitis, use a soft nylon-bristled toothbrush. Rinse your toothbrush well after each use and store it in a dry place. Do not use commercial toothpastes or mouthwashes that contain alcohol. Rinse or brush your teeth within 30 minutes after each meal. The nursing staff will provide you with a bicarbonate of soda mouthrinse to use after brushing and every 4 hours during the day. Be sure to

inform your nurse whether this rinse is helping to decrease soreness.

Here are some eating hints to help prevent or lessen mouth soreness:

- Avoid hot or spicy foods.
- Avoid the following acidic foods (and juices made from them): oranges, lemons, limes, grapefruit, pineapples, tomatoes.
- Avoid carbonated beverages.
- Avoid such hard foods as crackers, potato chips, or pretzels.

To help keep you comfortable, your nurse can also give you a liquid anesthetic to numb your mouth and an artificial saliva spray that will help lessen soreness. A humidifier may be placed in your room to prevent your mouth from becoming too dry.

Nausea and Vomiting

Many patients will experience nausea and vomiting during treatment. Tell your nurse whenever you feel nauseated so that medication can be given. If this medication does not help, let your nurse know. There are other medications that may be more effective for you.

Will I need to do anything special after IL-2 therapy?

To help you recover as quickly as possible from IL-2 therapy, follow these guidelines:

- Gradually increase your food intake. Eat such high protein foods as meat, eggs, milk, and cheese. Drink about four to six glasses of fluid each day.
- Drink such high calorie beverages as instant breakfasts, milkshakes, and eggnogs.
- Gradually increase your exercise and take frequent rest breaks. Sleep disturbances and unusual

dreams may continue for 2 to 3 weeks.

- Use a strong sunblock (sun protection factor of 15 or greater) when you are outside for more than a few minutes.
- Continue to use the oils, lotions, or creams you used in the hospital. The skin side effects from IL-2 may last for 6 weeks.

Call the clinic (301-496-5483, 8:30-5 p.m. Monday through Friday) or 2 East (301-496-3191, after hours or on weekends or holidays) if you have any of the following problems:

- inability to tolerate food for more than 7 to 10 days
- prolonged diarrhea, nausea, or vomiting
- difficulty breathing
- fever
- any new pain.

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